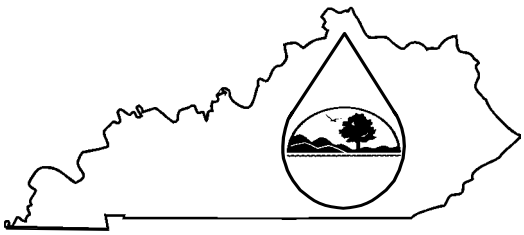
KPDES FORM SDAA



Kentucky Pollutant Discharge Elimination System (KPDES)

Socioeconomic Demonstration and Alternatives Analysis

The Antidegradation Implementation Procedure found in 401 KAR 10:030, Section 1(3)(b)3 requires KPDES permit applications for new or expanded discharges to waters categorized as "Exceptional or High Quality Waters" to conduct a socioeconomic demonstration and alternatives analysis to justify the necessity of lowering local water quality to accommodate important economic or social development in the area in which the water is located. This demonstration shall include this completed form and copies of any engineering reports, economic feasibility studies, or other supporting documentation

I. Project Information

Facility Name: Toms Branch Surface Mine (DMRE Permit #836-0355)

Location: 1.1 mile SE of County Rt. 2285's Jct. with Toms Br. Rd.	**County: Floyd**

Receiving Waters Impacted: Toms Branch of Buffalo Creek and an Unnamed Tributary of Buffalo Creek

II. Socioeconomic Demonstration

1. Define the boundaries of the affected community:
(Specify the geographic region the proposed project is expected to affect. Include name all cities, towns, and counties. This geographic region must include the proposed receiving water.)

The proposed project will be located on Toms Branch of Buffalo Creek and an unnamed tributary of Buffalo Creek near the community of Endicott in Floyd County. The proposed receiving stream channels will be Toms Branch/Unnamed Tributary of Buffalo Creek of the Levisa Fork of the Big Sandy River. The proposed project area is approximately 1.1 miles southeast of Toms Branch County Road junction with County Route 2285 at latitude of 37° 39' 22" and longitude of 82° 37' 28". The surface disturbance associated with the project area is located on the Lancer and Thomas USGS 7½ minute quadrangle maps.

2. The effect on employment in the affected community:
(Compare current unemployment rates in the affected community to current state and national unemployment rates. Discuss how the proposed project will positively or negatively impact those rates, including quantifying the number of jobs created and/or continued and the quality of those jobs.)

Based upon estimates of the USDA-Economic Research Service, the unemployment rate for Floyd County in 2008 was 6.8% compared to 6.4% statewide and 5.8% nationally.

The cumulative economic impact of the proposed project will be to contribute to the overall present economy in Floyd County. Not only will the proposed project directly contribute to the mining industry, but will contribute to other sectors closely related to the mining industry. These sectors will include trucking companies, mine supply companies, equipment sales companies, fuel sales companies, engineering firms, and other sectors that depend upon the mining industry as a part of their accounts receivable base. Floyd County heavily relies on the coal industry as a part of its viable economy, as do most counties in the region. Floyd County mining accounted for 4.2% of all employment in FY 2004 and accounted for 6.9% of total county wages (KY Coal Facts). As old mining operations close, new operations must be opened in order for the local economy to sustain its current level. History has shown that a 'slow down' in the coal industry directly impacts differing business sectors within the region.

While retail and services employed the greatest percentages of workers in Floyd County in 2004, the mining, public

administration, and information sectors provided the highest average weekly wage (U.S. Department of Labor, Bureau of Labor Statistics). The mining industry paid an average weekly wage of $778.76. It is estimated that the proposed surface mining operation will pay out an annual payroll of approximately $809,900 to approximately 20 employees. Additionally, the proposed mining project would support employment for sectors that provide a service to the mining industry, i.e. material sells equipment sells/rentals, etc. The money paid out would be circulated throughout the community and help create a local healthy economy. The total number of American jobs created both directly and indirectly by the domestic mining industry was more than 3 times the number of workers directly involved in mining (KY Coal Facts). Thus, approximately 60 people would be indirectly impacted by the proposed surface mining operation, in addition to the 20 persons/families directly related.

The proposed surface mining operation will include new facilities that will possibly create employment for persons currently unemployed or for persons currently working at other mining facilities that are nearing completion, and perhaps will become unemployed if new job opportunities are not presented. The jobs created by the proposed operation will be permanent during the life of the operation. Additionally, the proposed operation may possibly create jobs indirectly related to the operation as additional mining operations create demands for operational supplies. Thus, the 20 employees needed to conduct the proposed mining operation will be able to continue working within the mining industry.

The 2000 census results showed that Floyd County had a total population of 42,441 and had a population of 40,869 in 2008, a decrease of 3.7%. The decrease in population may result from relocations due to unavailable employment. Twenty-four percent of Floyd County residents lived below the poverty range in 2008. The median household income for residents residing in Floyd County in FY 2008 was $26,236. The proposed mining operation will aid in raising the average annual household income and will help increase job opportunities in the region.

II. Socioeconomic Demonstration- continued

3. The effect on median household income levels in the affected community:

(Compare current median household income levels with projected median household income levels. Discuss how proposed project will positively or negatively impact the median household income in the affected community including the number of households expected to be impacted within the affected community.)

The median household income level for Floyd County in 2008 was $26,293 (USDA-Economic Research Service). Jobs continued by the proposed project would produce an average annual income per employee of approximately $40,495, which is 54% more than the county median household income. Continuation of employment for the proposed operation would positively impact approximately 20 households directly within the surrounding community and approximately 60 households indirectly. The market value of surrounding taxable property would increase over time with continued quality paying employment, such as offered by the proposed project. Additionally, the continued employment would aid with educational opportunities, better health care, and the provision of everyday basic necessity needs (ie. food, shelter, and clothing).

The annual income paid to miners for the proposed project would increase the purchasing power of Floyd County by $809,900 annually and the effects would trickle to other related and unrelated industries throughout the community.

4. The effect on tax revenues of the affected community:

(Compare current tax revenues of the affected community with the projected increase in tax revenues generated by the proposed project. Discuss the positive and negative social and economic impacts on the affected community by the projected increase.)

The mining industry contributes to the local tax base through taxes on real and personal property, which in turn funds public services. During active stages of a mining operation, the property is assessed at a higher value when real property taxes are determined. Prior to mining activities or post mining activities, the idle property has a much lower value and property taxes paid do not contribute as much to the local economy. Personal property taxes are levied on the equipment utilized during a mining operation. A surface mining operation requires the purchase and use of numerous, very expensive, pieces of equipment during the life of the operation. The purchase of mining equipment drives the industry's sizable contribution to the personal property tax base because new equipment is expensive and depreciates rapidly. Property tax payments will be received from the operator during the life of the project, otherwise if not permitted, property tax payments received by Floyd County would be a lesser amount. The state severance tax is a gross receipt tax levied on businesses that sever, extract, and/or produce natural resource products, including coal, in Kentucky. The goal of the severance tax is to provide producing counties with funds to develop alternative industries to sustain the communities in the future once this natural resource is exhausted. The proposed operation would generate approximately $2,423,415 (based on a minimum of $0.50/ton with approximately 4,846,830 tons of recoverable reserve) in severance tax during the life span of the operation. Although a majority of the tax revenue is directed to the state, a large portion will directly benefit Floyd County. During FY 2005 coal taxes were received by Floyd County totaled $725,754 (KY Coal Facts).

II. Socioeconomic Demonstration- continued

5. The effect on an existing environmental or public health in affected community:
(Discuss how the proposed project will have a positive or negative impact on an existing environmental or public health.)

The proposed surface mining operation will be performed in accordance with all state and federal regulations governing the coal mining industry to ensure environmental and public health. The proposed area has been previously logged and natural gas wells and lines have been constructed. The previous disturbances were performed without sediment control in-place, thus, excessive sediment was allowed to enter the receiving stream channel. The proposed mining operation will provide sediment control via sediment control ponds that will be located downstream and on-bench from the proposed disturbance area. All discharges that will be created by proposed mining disturbances will pass through a sediment structure. The proposed sediment control ponds will capture sediment runoff from the proposed surface disturbance areas as well as from the previously disturbed areas. The sediment control structure will allow the receiving stream to recover from previous sedimentation and prior to removal of said sediment control ponds all disturbed areas, previous and proposed, will be revegetated. This will create a better habitat for aquatic organisms within the receiving stream channel.

6. Discuss any other economic or social benefit to the affected community:
(Discuss any positive or negative impact on the economy of the affected community including direct and or indirect benefits that could occur as a result of the project. Discuss any positive or negative impact on the social benefits to the community including direct and indirect benefits that could occur as a result of the project.)

Due to the economic impact of the coal industry throughout Kentucky in 2004, in addition to 15,012 persons working at the mines, 6,021 persons worked in factories making everything from mining equipment to home appliances; 2,617 persons drove coal trucks and cargo trucks, worked at rail yards, etc.; 12,704 persons worked in warehouses, sold clothing, appliances, furniture, in retail stores, etc.; 12,470 persons worked in banks, law offices, engineering firms, accounting firms, and other service businesses; 4,366 persons built homes, offices, factories, and highways; and 7,968 others were teachers, government officials, and a wide variety of other professions and occupations. (KY Coal Facts)

The mining industry accounted for 574 jobs directly related to mining in 2004 in Floyd County and made up 3.9% of the total labor force. Wages paid out to miners in Floyd County in 2004 totaled $23,234,536, comprising 6.9% of the county's total wages with an average weekly salary of $778.76.

III. Alternative Analysis

1. Pollution prevention measures:

(Discuss the pollution prevention measures evaluated including the feasibility of those measures and the cost. Measures to be addressed include but are not limited to changes in processes, source reductions or substitution with less toxic substances. Indicate which measures are to be implemented.)

The applicant is proposing a coal removal operation and will remove the coal reserves by utilizing surface mining methods. An alternative to this removal method would be that of underground mining. Coal removal by underground mining methods of the proposed reserves is impractical, as the coal beds within the reserve area cannot be economically mined via the underground mining method due to the nature of the reserves. The multiple seams and their relative elevations from the surface would make it dangerous and impractical to deep mine. Subsidence would be a major factor and the safety of the miners would be compromised through underground mining methods. The percent recovery would also be drastically reduced through underground mining methods resulting in approximately 2.5 million tons of reserves left in place due to the need for pillars and subsidence protection zones for underground mining.

The main pollution prevention measure implemented for the proposed project will be the construction of the proposed sedimentation ponds. The sedimentation ponds will prevent excessive sediment from reaching the receiving stream, as runoff from the surface disturbance areas will be directed through the sedimentation ponds upon which the sediment will 'settle-out' prior to the water discharging from the structure. Other pollution prevention measures for the proposed project would include the construction of on-site diversions to convey water around disturbed areas, preventing runoff from undisturbed areas from entering disturbed areas and to prevent runoff from disturbed areas from entering undisturbed areas prior to entering sediment control structure(s).

2. The use of best management practices to minimize impacts:

(Discuss the consideration and use of best management practices that will assist in minimizing impacts to water quality from the proposed permitted activity.)

During the lifetime of the proposed surface mining activity, the operator will implement best management practices that will aid in the avoidance of possible impacts on aquatic resources. Best management practices considered and will be implemented in appropriate situations include, but are not limited to, any of the following, singly or in combination: basins, diversion ditches, filter strips, land grading & reshaping, mulching, placement of rip-rap, rapid revegetation (especially along stream banks), rock check dams, silt fences, straw bale barriers, stream bank stabilization, sumps, and work in periods of no or low flow or dry weather.

The main best management practice to be implemented will be the construction of the proposed sediment ponds. The sediment ponds will capture runoff from surface disturbance areas and remove sediment fines prior to the water being discharged to the local stream channel. The sediment ponds have been designed and will be constructed to handle a 25 year/24 hour precipitation event and will be placed away from any steep topography or buffer zones. During construction of the sediment ponds, alternative sediment control devices (ie. silt fences and straw bale dikes) will be utilized to prevent excessive sediment from entering the local stream channel. All sediment structures will be inspected following significant rainfall events and at minimum quarterly inspections will be performed by qualified personnel.

3. Recycle or reuse of wastewater, waste by-products, or production materials and fluids:
(Discuss the potential recycle or reuse opportunities evaluated including the feasibility of implementation and the costs. Indicate which of, of these opportunities are to be implemented)

The applicant is proposing forty-one (41) discharge locations (sedimentation ponds) that will discharge into Toms Branch/Unnamed Tributary of Buffalo Creek and Morrison Branch/Unnamed Tributaries of Johns Creek. The proposed discharge points will control runoff from approximately 676.40 surface disturbance acres via sedimentation ponds and assuming that the ponds maintain a full volume of water, the total volume of water available for recycling uses each month would be approximately 4,500,000 gallons (based on proposed pond capacities). Approximately 20,000 gallons of stored water each month (during the months of June, July, and August each year) could be reused as a dust suppressant for road facilities. Re-distribution of the water to the surrounding surface areas would be difficult, as the surrounding slopes average 27° and runoff would create additional potential environmental damage.

An additional on-site reuse of waters to be evaluated is that of utilizing the water during reclamation operations. As proposed, the proposed project area would require a total of 676.40 acres of reclamation/revegetation. Water utilized within hydroseeders during reclamation would provide a need of approximately 1,691,000 gallons of water (one truck-load of 2500 gallons per acre), thus the total amount utilized would not eliminate the discharges generated during the mining operation. No other water is needed for recycling or reuse with this operation.

In order to recycle the additional amount of generated wastewater to potable drinking water, the discharge would have to be transferred to the City of Prestonsburg drinking water treatment facility located approximately 15 miles north of the proposed discharge location within the city of Prestonsburg. Thus, the cost associated with the transfer of the discharges to the treatment facility would be $5,306,400 (79,200 feet of 24" diameter HDPE pipe at $67.00/linear foot) to run a 24" diameter HDPE pipe to the nearest treatment facility.

III. Alternative Analysis - continued

4. Application of water conservation methods:
(Discuss the potential water conservation opportunities evaluated including the feasibility of implementation and the costs. Indicate which of, of these opportunities are to be implemented)

Re-using the captured storm water would conserve the stream. Thus, the water conservation procedure for the proposed mining operation will be to re-use the captured storm water for on-site dust control, hydroseeding operations, and where possible, irrigation operations. (The requirement for water conservation via irrigation methods is slope readings of no greater than 6%).

Mining activities are not normally water dependent operations; however, all captured water will be recycled/re-used to the fullest extent possible. The water stored in sediment ponds will be re-distributed to the local stream channel once the pond has reached full capacity (spillway elevation). Upon full capacity, the flow to the local stream channel will be the same as pre-mining conditions. Water losses would only result from evaporation and infiltration, which both losses would result in recycling as the evaporation contributes to rainfall and infiltration will feed back to the local stream channel.

5 Alternative or enhanced treatment technology:
(Compare feasibility and costs of proposed treatment with the feasibility and costs of alternative or enhanced treatment technologies that may result in more complete pollutant removal. Describe each candidate technology including the efficiency and reliability in pollutant removal and the capital and operational costs to implement those candidate technologies. Justify the selection of the proposed treatment technology.)

Several alternatives for treating water from the project area and discharging it to streams and rivers in the area have been evaluated. These alternatives include construction of a water treatment facility, construction of physical filter barriers, chemical treatment of drainage, and construction of wetlands.

Water Treatment Facility Construction of a small water treatment facility (500,000 gallons per day) on the project site would cost over $1.6 million dollars, plus an additional cost of $50,000 for a containment reservoir. Because of the high cost of construction and the short life of the proposed operation (ten years) the on-site water treatment facility would not be feasible.

Physical Filter Barriers Physical filter barriers such as silt fences and straw bales are designed for use with small discharges and would not be able to handle the large discharge flow generated nor would they meet requirements of the Commonwealth of Kentucky's Surface Mine Regulations as set forth in 405 KAR 16:070. However, physical filter barriers will be utilized to minimize impacts to local stream channels during construction and removal of the sediment ponds.

Chemical Treatment Chemical treatment of drainage was also considered. The primary treatment required at the proposed site is the removal of sediments, which would require the use of sediment ponds to hold the runoff water from surface disturbance areas while the sediment fines settle out. Chemicals may augment this process, but sediment removal is not possible using chemical treatment alone. It would not be cost efficient to chemically treat the entire column of discharge at the proposed site.

Wetland Construction Constructed wetlands have traditionally been used for biological treatment. The discharge to be generated by the proposed project is highly sediment laden. Wetlands could be a suitable mechanism for treatment of the conductivity; however, sediment ponds provide a similar function at a much less cost. Furthermore, the proposed project area is located at higher elevations, well above the valley bottoms. Thus, the constructed wetland area would have to be in the valley bottom and this would create additional impacts to the upper reaches of the local stream channels.

III. Alternative Analysis - continued

6. Improved operation and maintenance of existing treatment systems:
(Discuss improvements in the operation and maintenance of any available existing treatment system that could accept the wastewater. Compare the feasibility and costs of improving an existing system with the feasibility and cost of the proposed treatment system.)

The storm water runoff from the proposed surface disturbance areas will be captured in sediment pond structures prior to discharge to local stream channel(s). This will allow settling out of excessive sediment fines so that lowering of water quality will be minimized based on applicable regulations concerning discharges from the proposed project site. In order for larger sediment ponds to be constructed that would further increase the settling time of sediments, the proposed sediment ponds would have to be moved from their on-bench locations and located further downstream within the valley bottom. This would increase surface disturbance and directly impact the local stream channel, as the sediment ponds would be constructed within the stream channel. The environmental impact would be greater with this scenario.

In order to recycle the additional amount of generated wastewater to potable drinking water, the discharge would have to be transferred to the City of Prestonsburg drinking water treatment facility located approximately 15 miles north of the proposed discharge location within the city of Prestonsburg. Thus, the cost associated with the transfer of the discharges to the treatment facility would be $5,306,400 (79,200 feet of 24" diameter HDPE pipe at $67.00/linear foot) to run a 24" diameter HDPE pipe to the nearest treatment facility.

7. Seasonal or controlled discharge options:
(Discuss the potential of retaining generated wastewaters for controlled releases under optimal conditions, i.e. during periods when the receiving water has greater assimilative capacity. Compare the feasibility and cost of such a management technique with the feasibility and cost of the proposed treatment system.)

The proposed sediment control structure has been designed to control a 25 year/24 hour storm event. This means that the pond was designed and will be constructed to handle a rainfall event within a 24 hour period of the intensity such as only normally occurring once within a 25 year period. Thus, once the proposed ponds are filled with water the receiving stream flow will be that of pre-mining conditions. The pond will fill to the spillway elevation and will flow through the spillway and will maintain a hydrologic controlled release in accordance with normal stream flow rates. During high flow conditions the pond will release water at such a rate that normal stream flow conditions are maintained. Additionally, during low flow conditions the pond will retain water that will in-turn maintain normal stream flow conditions.

The capacity of the physical, chemical and biological processes to assimilate is interconnected and based on the features of the streamscape (the stream, flood plain and riparian zone). Even though the removal of natural features such as vegetative cover may compromise the abilities of stream assimilative processes, construction of the sediment ponds will mitigate the impacts. The sediment ponds will retard the velocity of the storm water runoff and enhance sediment filtering and reduce its deposition.

III. Alternative Analysis - continued

8 Land application or infiltration or disposal via an Underground Injection Control Well

(Discuss the potential of utilizing a spray field or an Underground Injection Control Well for shallow or deep well disposal. Compare the feasibility and costs of such treatment techniques with the feasibility and costs of .proposed treatment system.)

See AT_III

9 Discharge to other treatment systems

(Discuss the availability of either public or private treatments systems with sufficient hydrologic capacity and sophistication to treat the wastewaters generated by this project. Compare the feasibility and costs of such options with the feasibility and costs of the proposed treatment system.)

See AT_III

IV Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Signature:	Ronald G. Hull	**Date:**	12/23/09

III. Alternative Analysis - continued

8 Land application or infiltration or disposal via an Underground Injection Control Well

(Discuss the potential of utilizing a spray field or an Underground Injection Control Well for shallow or deep well disposal. Compare the feasibility and costs of such treatment techniques with the feasibility and costs of .proposed treatment system.)

The potential for on-site disposal of wastewater was investigated. The construction of injection wells on-site was investigated as an alternative to the proposed discharges. The injection wells would be approximately 8" in diameter and approximately 300' in depth and would hold a volume of water of approximately 785 gallons per well. Thus, approximately 5,734 wells would be needed to ensure no discharge will occur. The estimated costs associated with the wells would be approximately $20/linear foot, thus, 5,734 wells at 300' in depth would cost approximately $34,404,000.

Abandoned underground mine works within the Broas coal bed are present within/adjacent to the proposed area and was evaluated as a possible site for disposal of runoff from the disturbed areas. The abandoned underground works are located above drainage, thus, a surface 'blowout' would be a threat to environmental and public safety. Additionally, by injecting the abandoned underground works with water would create a potential hazard for surface mine workers, as the abandoned Broas works have been cut into and removed by the adjacent CAM Mining permits 898-0778/898-0779.

9 Discharge to other treatment systems

(Discuss the availability of either public or private treatments systems with sufficient hydrologic capacity and sophistication to treat the wastewaters generated by this project. Compare the feasibility and costs of such options with the feasibility and costs of the proposed treatment system.)

In order to recycle the additional amount of generated wastewater to potable drinking water, the discharge would have to be transferred to the City of Prestonsburg drinking water treatment facility located approximately 15 miles north of the proposed discharge location within the city of Prestonsburg. Thus, the cost associated with the transfer of the discharges to the treatment facility would be $5,306,400 (79,200 feet of 24" diameter HDPE pipe at $67.00/linear foot) to run a 24" diameter HDPE pipe to the nearest treatment facility.

A possible alternative to piping water to the treatment facility would be the use of trucks to transport water. This alternative would pose additional costs of approximately $12,800,000 (Sixty Four 70,000 gallon tanks + labor +pipe system) in the construction of a system of pipes and collection tanks to collect and hold the water prior to loading tanker trucks. There would also be transportation costs of approximately $3.25 per mile (fuel and service). If the total amount of water collected per month were 4,500,000 gallons (based on proposed pond volumes), it would need 2250 round trips per month using a 2000-gallon truck. Thus, 2250 trips at a distance of 30 miles at $3.25/mile generates a cost of $219,375/per month, $26,325,000 total over the life of the project, plus the initial $200,000 investment, plus the approximately $640,000 cost to remove the system once the project is complete, plus the initial $70,000 investment for the tanker truck, plus the annual salary for the tanker truck driver. This alternative would also result in additional impacts to the environment in the form of a loss of about 4,500,000 gallons of water per month to the local watershed. This may constitute material damage to the hydrologic balance within and outside of the permit area. In addition, implementing this alternative would result in increased risks to public safety because it would necessitate repeated daily trips by large tanker trucks on small rural roads.